Linear functions - midpoint, endpoint and distance

Find the midpoint of the line segment with the given endpoints.

1) (−1, −6), (2, 10)

2) (4, 1), (−10, −8)

3) (3, −5), (2, −3)

4) (5, 3), (−9, 2)

5) (5, −3), (10, 0)

6) (−5, −1), (2, 0)

7) (−10, 4), (7, 2)

8) (5, 0), (−5, 2)

9) (3, −8), (−3, −4)

10) (1, 1), (−5, −3)

Given the midpoint and one endpoint of a line segment, find the other endpoint.

11) Endpoint: (2, 3), midpoint: (−9, 7)

12) Endpoint: (−10, −9), midpoint: (6, 9)

13) Endpoint: (1, 9), midpoint: (−9, 4)

14) Endpoint: (−3, 3), midpoint: (−9, −9)

15) Endpoint: (4, −9), midpoint: (−8, −4)

16) Endpoint: (4, 2), midpoint: (7, 4)

17) Endpoint: (−9, 2), midpoint: (−8, 7)

18) Endpoint: (−2, −5), midpoint: (10, −4)

19) Endpoint: (8, −5), midpoint: (−2, −10)

20) Endpoint: (3, 1), midpoint: (−4, −2)

Find the distance between each pair of points.

21) (1, 5), (2, 4)

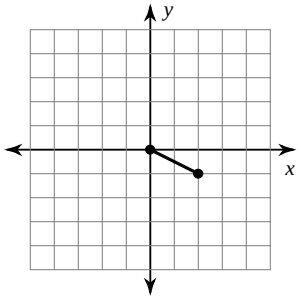
22) (–8, –5), (–7, 2)

23) (5, –1), (–1, –6)

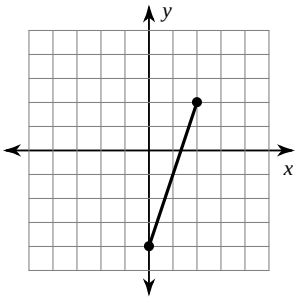
24) (6, 2), (–1, 3)

25) (8, 5), (4, –5)

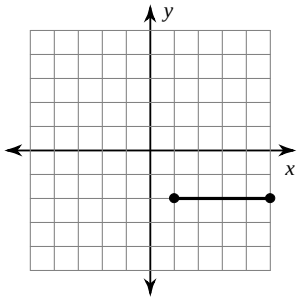
26)



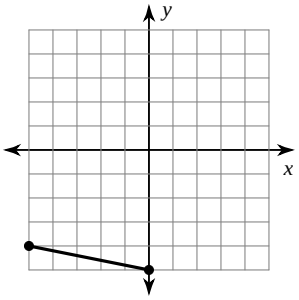
27)



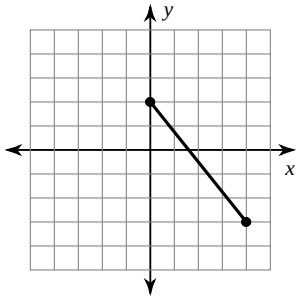
28)



29)



30)



Find the value of x or y so that the line through the points has the given slope.

31) (–1, *y*) and (1, –2); slope: $-\frac{1}{2}$

32) (–7, *y*) and (2, –2); slope: $-\frac{10}{9}$

33) (9, *y*) and (1, –9); slope: $\frac{3}{8}$

34) (–7, *y*) and (1, 6); slope: $-\frac{3}{8}$

35) (–5, 4) and (*x*, –7); slope: $-\frac{11}{5}$

36) (5, *y*) and (–3, –2); slope: $\frac{1}{2}$

Answers to Linear functions - midpoint, endpoint and distance

1) $\left(\frac{1}{2}, 2\right)$
2) $\left(-3, -3\frac{1}{2}\right)$
3) $\left(2\frac{1}{2}, -4\right)$
4) $\left(-2, 2\frac{1}{2}\right)$
5) $\left(7\frac{1}{2}, -1\frac{1}{2}\right)$
6) (−1.5, −0.5)
7) (−1.5, 3)
8) (0, 1)
9) (0, −6)
10) (−2, −1)
11) (−20, 11)
12) (22, 27)
13) (−19, −1)
14) (−15, −21)
15) (−20, 1)
16) (10, 6)
17) (−7, 12)
18) (22, −3)
19) (−12, −15)
20) (−11, −5)
21) $\sqrt{2}$
22) $5\sqrt{2}$
23) $\sqrt{61}$
24) $5\sqrt{2}$
25) $2\sqrt{29}$
26) 2.236
27) 6.325
28) 4
29) 5.099
30) 6.403
31) −1
32) 8
33) −6
34) 9
35) 0
36) 2